تمرین 3

بنفشه کریمیان 94521189

برای گرفتن نتایج ابتدا با یک فیچر ساده اولین کلمه نتایج زیر را مشاهده کردیم:

```
MaxEntTrainer,gaussianPriorVariance=1.0
Summary. train accuracy mean = 0.8914728682170543 stddev = 0.0 stderr = 0.0
Summary. test accuracy mean = 0.6046511627906976 stddev = 0.0 stderr = 0.0
Summary. test precision(2) mean = 0.5428571428571428 stddev = 0.0 stderr = 0.0
Summary. test precision(1) mean = 0.875 stddev = 0.0 stderr = 0.0
Summary. test precision() mean = 1.0 stddev = 0.0 stderr = 0.0
Summary. test recall(2) mean = 0.95 stddev = 0.0 stderr = 0.0
Summary. test recall(1) mean = 0.30434782608695654 stddev = 0.0 stderr = 0.0
Summary. test recall() mean = 1.0 stddev = 0.0 stderr = 0.0
Summary. test f1(2) mean = 0.6909090909090908 stddev = 0.0 stderr = 0.0
Summary. test f1(1) mean = 0.4516129032258065 stddev = 0.0 stderr = 0.0
Summary. test f1() mean = 1.0 stddev = 0.0 stderr = 0.0

NaiveBayesTrainer
Summary. train accuracy mean = 0.8940568475452196 stddev = 0.0 stderr = 0.0
Summary. test accuracy mean = 0.7441860465116279 stddev = 0.0 stderr = 0.0
Summary. test precision(2) mean = 0.8461538461538461 stddev = 0.0 stderr = 0.0
Summary. test precision(1) mean = 0.7 stddev = 0.0 stderr = 0.0
Summary. test precision() mean = 1.0 stddev = 0.0 stderr = 0.0
Summary. test recall(2) mean = 0.55 stddev = 0.0 stderr = 0.0
Summary. test recall(1) mean = 0.9130434782608695 stddev = 0.0 stderr = 0.0
Summary. test recall() mean = 1.0 stddev = 0.0 stderr = 0.0
Summary. test f1(2) mean = 0.6666666666666667 stddev = 0.0 stderr = 0.0
Summary. test f1(1) mean = 0.7924528301886793 stddev = 0.0 stderr = 0.0
Summary. test f1() mean = 1.0 stddev = 0.0 stderr = 0.0
```

که در کل میتوان گفت NaiveBayes اندکی بهتر عمل کرده‌است.

در مرحله بعد دو فیچر دیگر کلمه ی با بیشترین طول و کلمه با کمترین طول را به فیچر قبل اضافه و نتایج زیر به دست آمدند:

```
MaxEntTrainer,gaussianPriorVariance=1.0
Summary. train accuracy mean = 0.9941690962099126 stddev = 0.0 stderr = 0.0
Summary. test accuracy mean = 0.5789473684210527 stddev = 0.0 stderr = 0.0
Summary. test precision(2) mean = 0.625 stddev = 0.0 stderr = 0.0
Summary. test precision(1) mean = 0.5666666666666667 stddev = 0.0 stderr = 0.0
Summary. test recall(2) mean = 0.2777777777777778 stddev = 0.0 stderr = 0.0
Summary. test recall(1) mean = 0.85 stddev = 0.0 stderr = 0.0
Summary. test f1(2) mean = 0.3846153846153846 stddev = 0.0 stderr = 0.0
Summary. test f1(1) mean = 0.68 stddev = 0.0 stderr = 0.0

NaiveBayesTrainer
Summary. train accuracy mean = 0.9854227405247813 stddev = 0.0 stderr = 0.0
Summary. test accuracy mean = 0.631578947368421 stddev = 0.0 stderr = 0.0
Summary. test precision(2) mean = 0.5909090909090909 stddev = 0.0 stderr = 0.0
Summary. test precision(1) mean = 0.6875 stddev = 0.0 stderr = 0.0
Summary. test recall(2) mean = 0.7222222222222222 stddev = 0.0 stderr = 0.0
Summary. test recall(1) mean = 0.55 stddev = 0.0 stderr = 0.0
Summary. test f1(2) mean = 0.65 stddev = 0.0 stderr = 0.0
Summary. test f1(1) mean = 0.6111111111111112 stddev = 0.0 stderr = 0.0
```

در این مرحله هم اندکی NaiveBayes بهتر عمل کرده است.